



PCT10

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/019,098

DATE: 01/22/2002

TIME: 13:19:06

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4 <110> APPLICANT: HAFEN, Ernst  
 6 <120> TITLE OF INVENTION: In vivo model system for type-2 diabetes  
 8 <130> FILE REFERENCE: 27656/38053  
 C--> 10 <140> CURRENT APPLICATION NUMBER: US/10/019,098  
 C--> 11 <141> CURRENT FILING DATE: 2001-12-20  
 13 <150> PRIOR APPLICATION NUMBER: PCT/IB99/01166  
 14 <151> PRIOR FILING DATE: 1999-06-22  
 16 <160> NUMBER OF SEQ ID NOS: 4  
 18 <170> SOFTWARE: PatentIn Ver. 2.1  
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 21 <211> LENGTH: 2907  
 22 <212> TYPE: DNA  
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 30 tactacgata ccgaaaagaa gttcctgcaa agagccgagc caaaaagggt tatatatctg 180  
 32 aagaattgct tcaacatcaa tcggcgtttg gacaccaagc atagattttgt catttgctc 240  
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 48 atgcacaaca cgataactgag cgctatgtca gccaaaacag agtgcgaacac gaatttaata 720  
 50 aacgtttatc agaatagacc tgacttaagt cacgagccca tgagaaagcg atcgtcgct 780  
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 54 gaatttgcgcgca gctgcagttc gccccataac tatggtttcg gcagagagag atgcgatagc 900  
 56 ttaccaacca gaaatggAAC cctaagcgag tccagcaatc aaacgtactt tggttccaa 960  
 58 catggactgc gatccaatac tataatctggc atccgtccgc actcaaccaa caagcatagt 1020  
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 62 gtcgatgaat ccgacgacaa cggcagttttt agccactaca gattaaacac gcggtcatct 1140  
 64 gaaacggcaa ttccgtggaa aacattgtat gactttgcgcgaaatgatctt attttagcaaa 1200  
 66 gtcaccgaac aaaatgtaaatg tgacgaaaac tacataccga tgaatccagt caatcctacc 1260  
 68 gatgttatcc atgaaaaggaa gaaggctgat atgcagagat tggaaagatgc ttgcgtcat 1320  
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 88 caaaaaggaca ttttcaatgg caccaaacta aataacactg cgatcacatc cgaggatgg 1920  
 90 tacctcgaga tgaagccagt cggtaatgga tacactccca gttcgaaattt cctgccaatg 1980  
 92 aaagtggaga aactcaagct atccgactat cagacagcac cgccactcac cgcaacagcc 2040  
 94 gcaccagtgc acgatttaaa caaaaattagc acataacaata tatccgctga gaaatggaga 2100  
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 100 caaattgatt gcgagaaaat gtgcgcgcag agcagcgcata agctaaataa tcatctggcc 2280  
 102 gacaagattt tggagaacaa caatttggat ataggcgggc atgaggaaaa gaagtgggtt 2340  
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 110 agtgtgaata cgattcccgta taatgccacc gccaccgcgg tgagcagcag ctcactcacc 2580  
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 141 1 5 10 15  
 143 aag ctg aag acc atg aag aag aag ttc ttt gtg ctg tac gag gag acg 96  
 144 Lys Leu Lys Thr Met Lys Lys Phe Phe Val Leu Tyr Glu Glu Thr  
 145 20 25 30  
 147 agc act tcg gca gcc cgg ctg gag tac tac gat acc gaa aag aag ttc 144  
 148 Ser Thr Ser Ala Ala Arg Leu Glu Tyr Tyr Asp Thr Glu Lys Phe  
 149 35 40 45  
 151 ctg caa aga gcc gag cca aaa agg gtt ata tat ctg aag aat tgc ttc 192  
 152 Leu Gln Arg Ala Glu Pro Lys Arg Val Ile Tyr Leu Lys Asn Cys Phe  
 153 50 55 60  
 155 aac atc aat cgc cgt ttg gac acc aag cat aga ttt gtc att gtg ctc 240  
 156 Asn Ile Asn Arg Arg Leu Asp Thr Lys His Arg Phe Val Ile Val Leu  
 157 65 70 75 80  
 159 tcc tcc aga gac ggt gga ttc ggc atc gtt ctc gag aac gaa aat gat 288  
 160 Ser Ser Arg Asp Gly Gly Ile Val Leu Glu Asn Glu Asn Asp  
 161 85 90 95  
 163 tta cgc aaa tgg ttg gac aaa cta cta gtt cta caa agg aac ata gcc 336  
 164 Leu Arg Lys Trp Leu Asp Lys Leu Val Leu Gln Arg Asn Ile Ala  
 165 100 105 110

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168 Asn Ser Asn Gly Thr Ala His Ser Pro Tyr Asp His Val Trp Gln Val	
169 115 120 125	
171 gtc att caa aag aag ggt att tcg gag aaa gtt gga atc acc gga acc	432
172 Val Ile Gln Lys Lys Gly Ile Ser Glu Lys Val Gly Ile Thr Gly Thr	
173 130 135 140	
175 tac cac tgt tgc ctt act tca aaa tcc ctg aca ttc gtg tgc att gga	480
176 Tyr His Cys Cys Leu Thr Ser Lys Ser Leu Thr Phe Val Cys Ile Gly	
177 145 150 155 160	
179 ccg gag aag acg ccc aat ggc gag gat cgc gtt gcg agc att gaa ata	528
180 Pro Glu Lys Thr Pro Asn Gly Glu Asp Arg Val Ala Ser Ile Glu Ile	
181 165 170 175	
183 ctt ttg acc acg atc agg cga tgc ggt cat gca tcc cca caa tgt ata	576
184 Leu Leu Thr Thr Ile Arg Arg Cys Gly His Ala Ser Pro Gln Cys Ile	
185 180 185 190	
187 ttc tac gtg gaa ctt ggc cgc caa agt gtc ttg gga tct ggt gat ctg	624
188 Phe Tyr Val Glu Leu Gly Arg Gln Ser Val Leu Gly Ser Gly Asp Leu	
189 195 200 205	
192 tgg atg gag acg gat aac gca gct att gct act aat atg cac aac acg	672
193 Trp Met Glu Thr Asp Asn Ala Ala Ile Ala Thr Asn Met His Asn Thr	
194 210 215 220	
196 ata ctg agc gct atg tca gcc aaa aca gag tcg aac acg aat tta ata	720
197 Ile Leu Ser Ala Met Ser Ala Lys Thr Glu Ser Asn Thr Asn Leu Ile	
198 225 230 235 240	
200 aac gtt tat cag aat aga cct gac tta agt cac gag ccc atg aga aag	768
201 Asn Val Tyr Gln Asn Arg Pro Asp Leu Ser His Glu Pro Met Arg Lys	
202 245 250 255	
204 cga tcg tcg tct gca aac gaa gca tcg aag ccg ata aac gta aat gtc	816
205 Arg Ser Ser Ala Asn Glu Ala Ser Lys Pro Ile Asn Val Asn Val	
206 260 265 270	
208 ata caa aat agt caa aac tct ctc gaa ttg cgc agc tgc agt tcg ccc	864
209 Ile Gln Asn Ser Gln Asn Ser Leu Glu Leu Arg Ser Cys Ser Ser Pro	
210 275 280 285	
212 cat aac tat ggt ttc ggc aga gag aga tgc gat agc tta cca acc aga	912
213 His Asn Tyr Gly Phe Gly Arg Glu Arg Cys Asp Ser Leu Pro Thr Arg	
214 290 295 300	
216 aat gga acc cta agc gag tcc agc aat caa acg tac ttt ggt tcc aac	960
217 Asn Gly Thr Leu Ser Glu Ser Ser Asn Gln Thr Tyr Phe Gly Ser Asn	
218 305 310 315 320	
220 cat gga ctg cga tcc aat act ata tct ggc atc cgt ccg cac tca acc	1008
221 His Gly Leu Arg Ser Asn Thr Ile Ser Gly Ile Arg Pro His Ser Thr	
222 325 330 335	
224 aac aag cat agt aat agt cca acg ttc acc atg cca tta aga tgc tca	1056
225 Asn Lys His Ser Asn Ser Pro Thr Phe Thr Met Pro Leu Arg Cys Ser	
226 340 345 350	
228 gaa tcc gaa gag tca tca att agt gtc gat gaa tcc gac gac aac ggc	1104
229 Glu Ser Glu Glu Ser Ser Ile Ser Val Asp Glu Ser Asp Asp Asn Gly	
230 355 360 365	
232 agt ttt agc cac tac aga tta aac acg cgg tca tct gag acg gca att	1152

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237	Pro	Glu	Glu	Asn	Ile	Asp	Asp	Phe	Ala	Ser	Ala	Glu	Leu	Phe	Ser	Lys	
238	385							390				395				400	
240	gtc	acc	gaa	caa	aat	gta	agt	gac	gaa	aac	tac	ata	ccg	atg	aat	cca	1248
241	Val	Thr	Glu	Gln	Asn	Val	Ser	Asp	Glu	Asn	Tyr	Ile	Pro	Met	Asn	Pro	
242								405				410				415	
244	gtc	aat	cct	acc	gat	gct	atc	cat	gaa	aag	gag	aag	gct	gat	atg	cag	1296
245	Val	Asn	Pro	Thr	Asp	Ala	Ile	His	Glu	Lys	Glu	Lys	Ala	Asp	Met	Gln	
246								420				425				430	
248	aga	ttg	gaa	gat	gct	tcg	ctg	cat	ttc	aac	ttt	ccg	gag	cac	gcg	tcg	1344
249	Arg	Leu	Glu	Asp	Ala	Ser	Leu	His	Phe	Asn	Phe	Pro	Glu	His	Ala	Ser	
250								435				440				445	
252	gaa	aag	ctt	gct	aag	gat	ttt	gat	ctg	gac	tct	gat	aac	caa	tgc	tgt	1392
253	Glu	Lys	Leu	Ala	Lys	Asp	Phe	Asp	Leu	Asp	Ser	Asp	Asn	Gln	Cys	Cys	
254								450				455				460	
256	cgt	ccc	att	cgc	gcc	tat	tcg	ata	ggc	aac	aag	gtt	gag	cat	tta	aag	1440
257	Arg	Pro	Ile	Arg	Ala	Tyr	Ser	Ile	Gly	Asn	Lys	Val	Glu	His	Leu	Lys	
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260	ttt	aat	aag	cgc	ctg	gga	cac	ttg	aat	gat	acg	gga	cag	aat	ccg	aat	1488
261	Phe	Asn	Lys	Arg	Leu	Gly	His	Leu	Asn	Asp	Thr	Gly	Gln	Asn	Pro	Asn	
262								485				490				495	
264	cgc	gtg	cga	gcc	tac	tcg	gtt	ggc	tcc	aaa	tcg	aag	ata	ccg	cgc	tgc	1536
265	Arg	Val	Arg	Ala	Tyr	Ser	Val	Gly	Ser	Lys	Ser	Lys	Ile	Pro	Arg	Cys	
266								500				505				510	
268	gac	ctg	cag	cga	gtg	gtc	ctc	gtg	gag	gac	aat	aaa	cat	gag	ttc	aca	1584
269	Asp	Leu	Gln	Arg	Val	Val	Leu	Val	Glu	Asp	Asn	Lys	His	Glu	Phe	Thr	
270								515				520				525	
272	gcg	aat	agg	agt	cag	agt	agt	acc	aag	gaa	gga	acc	agc	tat	ggc		1632
273	Ala	Asn	Arg	Ser	Gln	Ser	Ser	Ile	Thr	Lys	Glu	Gly	Thr	Ser	Tyr	Gly	
274								530				535				540	
276	agc	agt	gcc	aat	cga	caa	aag	aag	tcc	aca	agt	gct	cca	ctc	ctc	agt	1680
277	Ser	Ser	Ala	Asn	Arg	Gln	Lys	Lys	Ser	Thr	Ser	Ala	Pro	Leu	Leu	Ser	
278								545				550				560	
280	ctg	aag	aac	cag	ata	aac	tcc	gac	cga	atg	agt	gac	tta	atg	gaa	att	1728
281	Leu	Lys	Asn	Gln	Ile	Asn	Ser	Asp	Arg	Met	Ser	Asp	Leu	Met	Glu	Ile	
282								565				570				575	
284	gat	ttt	tca	caa	gca	acc	aat	ttg	gaa	aag	cag	aag	ttc	atc	aag	aat	1776
285	Asp	Phe	Ser	Gln	Ala	Thr	Asn	Leu	Glu	Lys	Gln	Lys	Phe	Ile	Lys	Asn	
286								580				585				590	
288	aat	gaa	att	ccg	aaa	tac	att	gaa	aac	gtg	ttc	cca	aaa	gcc	ccg	cga	1824
289	Asn	Glu	Ile	Pro	Lys	Tyr	Ile	Glu	Asn	Val	Phe	Pro	Lys	Ala	Pro	Arg	
290								595				600				605	
292	acg	gat	agc	tcc	agc	cta	act	ctg	cac	gcc	aca	agt	caa	aag	gac	att	1872
293	Thr	Asp	Ser	Ser	Leu	Thr	Leu	His	Ala	Thr	Ser	Gln	Lys	Asp	Ile		
294								610				615				620	
296	ttc	aat	ggc	acc	aaa	cta	aat	aac	act	gcg	atc	aca	tcc	gag	gat	ggt	1920
297	Phe	Asn	Gly	Thr	Lys	Leu	Asn	Asn	Thr	Ala	Ile	Thr	Ser	Glu	Asp	Gly	

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302																	655
304																	2016
305	tgc	ctg	cca	atg	aaa	gtg	gag	aaa	ctc	aag	cta	tcc	gac	tat	cag	aca	
306	Cys	Leu	Pro	Met	Lys	Val	Glu	Lys	Leu	Lys	Leu	Ser	Asp	Tyr	Gln	Thr	
308																	2064
309	gca	ccg	cca	ctc	acc	gca	aca	gcc	gca	cca	gtg	cac	gat	tta	aac	aaa	
310	Ala	Pro	Pro	Leu	Thr	Ala	Thr	Ala	Ala	Pro	Val	His	Asp	Leu	Asn	Lys	
312																	2112
313	675	680	685														
314	Ile	Ser	Thr	Tyr	Asn	Ile	Ser	Ala	Glu	Lys	Trp	Arg	Glu	Gln	Pro	Ser	
316																	2160
317	aga	agc	gag	gaa	aag	tcg	aac	tcg	cca	ttg	aat	gac	aac	acc	ttt		
318	Arg	Ser	Glu	Glu	Lys	Lys	Ser	Asn	Ser	Pro	Leu	Asn	Asp	Asn	Thr	Phe	
319																	720
320	aga	tcg	aaa	ccc	aca	aat	gtc	gag	agt	aca	agc	aaa	agc	cat	gat	gtt	2208
321	Ser	Ser	Lys	Pro	Thr	Asn	Val	Glu	Ser	Thr	Ser	Lys	Ser	His	Asp	Val	
322																	735
324	cat	tca	gca	aat	caa	att	gat	tgc	gag	aaa	gtg	tgc	gcg	cag	agc	agc	2256
325	His	Ser	Ala	Asn	Gln	Ile	Asp	Cys	Glu	Lys	Val	Cys	Ala	Gln	Ser	Ser	
326																	750
328	740	745	750														2304
329	gat	aag	cta	aat	aat	cat	ctg	gcc	gac	aag	att	gtc	gag	aac	aac	aat	
330	Asp	Lys	Leu	Asn	Asn	His	Leu	Ala	Asp	Lys	Ile	Val	Glu	Asn	Asn	Asn	
332																	2352
333	ttg	gat	ata	ggc	ggg	cat	gag	gaa	aag	ttg	gtt	cat	tcg	ata	agc		
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336																	2400
337	770	775	780														
338	Ser	Glu	Asp	Tyr	Thr	Gln	Ile	Lys	Asp	Lys	Ser	Asn	Asp	Phe	Thr	Lys	
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341	785	790	795														2448
342	ttt	aac	gaa	gcc	ggc	tac	aaa	att	ctg	caa	att	aaa	agc	gac	agc	tca	
344	Phe	Asn	Glu	Ala	Gly	Tyr	Lys	Ile	Leu	Gln	Ile	Lys	Ser	Asp	Ser	Ser	
345																	2496
346	805	810	815														
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349	820	825	830														
350	gag	cgt	tcg	cag	aga	ctt	aca	gag	agt	gtg	aat	acg	att	ccc	gat	aat	2544
351	Glu	Arg	Ser	Gln	Arg	Leu	Thr	Glu	Ser	Val	Asn	Thr	Ile	Pro	Asp	Asn	
352																	2592
353	835	840	845														
354	aat	tca	gca	aag	cca	gcc	gcc	gcc	gat	tcg	cgt	agc	act	ggc	aca		
355	Asn	Ser	Ala	Lys	Pro	Ala	Ala	Ala	Asp	Ser	Arg	Ser	Thr	Gly	Thr		
356																	2640
357	865	870	875														
358	gat	cca	agt	aca	cca	cag	aac	att	cta	cag	att	aaa	gat	ttg	aat	ttc	
359	Asp	Pro	Ser	Thr	Pro	Gln	Asn	Ile	Leu	Gln	Ile	Lys	Asp	Leu	Asn	Phe	
360																	2688
361	885	890	895														

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L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date